

AUSTRALIAN PORK LIMITED
Care of the Compromised Pig

FIRST EDITION

2011



Acknowledgements

Australian Pork Limited (APL) would like acknowledge and thank the Ontario Farm Animal Council (OFAC) for allowing APL to borrow some of the content and ideas in this publication from the OFAC Caring for Compromised Pigs Guide, published in June 2010.

We would also like to thank the Australian Pig Veterinarians for allowing us to use content from their Sick and Injured Pig Guidelines for Veterinarians 2011.

PROJECT TITLE: Care of the Compromised Pig

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AUSTRALIAN PORK LIMITED

Care of the Compromised Pig

A producer's guide to the care and management
of compromised, sick or injured pigs

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Introduction

Pig producers and their staff work hard to ensure their pigs receive proper care 365 days a year but unfortunately a pig may still become sick or injured at any time in its life. This may be such that its well-being could be said to be less than optimal or “compromised”. While not always pleasant, or easy, responsible care of pigs requires appropriate, timely decisions to be made about treatment, culling, transporting and euthanising of “compromised” animals.

The aim of this guide is to:

1. Help anyone who cares for pigs to identify and assess sick or injured pigs that may be considered “compromised” and make responsible decision about their care and management.
2. Help ensure “compromised pigs” receive appropriate care and management that meets industry and government welfare standards.

It is important that compromised pigs are identified early and treated appropriately, to improve their health and welfare, reduce their suffering and increase their chances of recovery.

In Section 1 you will find a general overview about the care and management of compromised pigs. Section 2 provides more information about the assessment of a group of pigs. Section 3 provides examples of some specific conditions that can compromise pigs along with recommended producer actions. Section 4 provides a detailed discussion about euthanasia considerations and methods. Some useful recording sheets and tables (including a condition scoring chart and pig treatment recording sheets) have been provided in the Appendix.



I Overview - the care and management of compromised pigs

I.1 Basic Rules of Thumb

To begin with, here are a few rules of thumb to keep in mind when dealing with compromised pigs:

1. Every piggery should have a herd health program in place designed in consultation with the herd veterinarian as an important tool in prevention and management of compromised pigs.
2. If unsure about anything, always refer to your veterinarian for specific advice on treatment for sick and injured pigs.
3. Compromised pigs should be moved to a hospital pen if they are able to walk, eat and drink on their own, unless otherwise indicated by your veterinarian.
4. Keep records of any treatment given to pigs and ensure any medicated pigs comply with appropriate withholding periods (WHP) and/or export slaughter intervals (ESI) before being sent to slaughter.
5. Always use this guide in conjunction with the *'Is it Fit to Load?' Guide (1st Edition, 2010)* before transporting any pig, and if in doubt, leave it out!

I.2 Good references to have on hand

The following references should be used in conjunction with this guide in the care, management and prevention of compromised pigs.

The **'Is it Fit to Load?' Guide (1st Edition, 2010)**

This handy guide will help you assess the suitability of compromised pigs for transport. APL developed the *'Is it Fit to Load?' Guide (1st Edition, 2010)* to help pig producers understand the requirements of the Australian Standards and Guidelines for the Welfare of Animals – Land Transport of Livestock, 2009, known as the Transport Code. Phone APL on 1800 789 099 (Toll Free) if you don't already have a copy.



The Model Code of Practice for the Welfare of Animals 3rd Edition (Model Code)

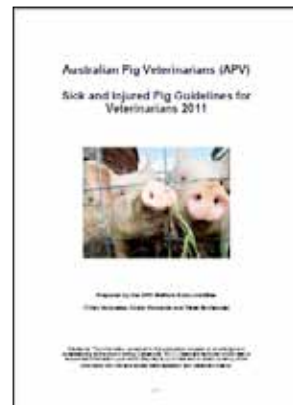
The Model Code provides Standards and Guidelines for the care and welfare of pigs in both intensive, deep litter and outdoor systems. Good welfare will ensure pigs can cope well in their environment and that factors such as growth, reproductive performance, disease levels, injuries and death rates stay within industry standards. The Standards in the Model Code have now been regulated and have or will become law under animal welfare legislation in most states. You can download a copy of the Model Code from www.publish.csiro.au/pid/5698.htm or you can phone 1300 788 000 to purchase a hard copy.



Australian Pig Veterinarians Sick and Injured Pig Guidelines for Veterinarians (APV) 2011

The APV Sick and Injured Pig Guidelines for Vets (2011) was designed with the following objectives:

- To identify legislative responsibilities of producers and stockpersons relevant to pig welfare in all states of Australia;
- To advise veterinarians of their legal responsibilities when dealing with adverse welfare events on-farm; and
- To develop a standardised set of guidelines for veterinarians regarding the treatment and management of sick and injured pigs.



It goes into further detail than this manual and may be of interest to producers who want more information.

Australian Pork Industry Quality Assurance Program (APIQ[✓])

The Australian Pork Industry Quality Assurance Program (APIQ[✓]) provides Standards for management, biosecurity, animal welfare, traceability and food safety systems on-farm. Producers can use these standards to assess and identify problems before they occur in their production systems. APIQ[✓] Manuals and Guides provide good reference material for the care of compromised pigs. For more information on APIQ[✓], go to www.apiq.com.au or phone APIQ Management on 1800 789 099 (Toll Free).



PigCare

The PigCare Module is a pig welfare assessment tool designed to be used as either part of the APIQ[✓] program and/or separately. For more information on PigCare please phone 1800 789 099 (Toll Free).

1.3 Prevention and early detection of problems

Prevention is always better than cure. Preventative measures and early detection of problems can significantly reduce the risk that a pig's health will become compromised and save you a lot of trouble. Below are some tips for prevention and early detection of problems in your pigs.

Early Detection:

Early detection of illness and appropriate treatment are important in minimising disease and discomfort. The best way to ensure you detect problems early is to get to know your pigs through daily observation and to get to know the signs that something is wrong. Pigs should be checked and observed every day, preferably several times a day, especially during feeding. Regular observation will help you understand how your pigs behave when they are healthy and happy. A well trained eye will than quickly notice if something is not right, which will allow you to make decisions early about management of the problem. Section 2 provides more detail about what to look for when assessing a group of pigs and Section 3 provides pictures of some common ailments in pigs.

Prevention:

Some simple preventative measures can help you avoid the occurrence of compromised pigs in your herd, and all the trouble that goes with it.

- **Biosecurity** - On-farm biosecurity is a very important part of keeping diseases out of your herd. Every farm should have some simple biosecurity measures in place e.g. a controlled entrance to the piggery, having a designated clean and dirty area, and only wearing clean clothing and boots into the clean area. The APIQ[✓]® Reference Manual available at www.apiq.com.au provides some good on-farm biosecurity guidance.
- **Herd health program** – It is a requirement of the Model Code that pig producers have a herd health program in place to manage the risk of disease. Your vet will be able to help you develop a heard health program with treatment strategies and protocols for dealing with common ailments. Your vet can also provide you with an approved medications list (AML) and protocol for using these medications on-farm when necessary. There are templates for herd health plans available from the Victorian Department of Primary Industries (<http://www.dpi.vic.gov.au/agriculture/animals-and-livestock/pigs/pig-health-and-welfare/herd-health-program-checklist>) and in the APIQ[✓]® Pig Management Diary.
- **Equipment and facilities** - Well designed equipment and facilities, help to prevent injuries and optimise health and welfare. You should have a regular checking and maintenance schedule in place to prevent problems and to fix them quickly if they occur. Seek expert advice when designing new facilities or refurbishing old facilities and ensure they meet the space and welfare requirement in the Model Code.

1.4 A healthy environment for pigs

Looking after an animal is about meeting its specific requirements as well as possible. The more an animal's environment meets its needs, the more likely that the animal will be happy and healthy and therefore thrives.

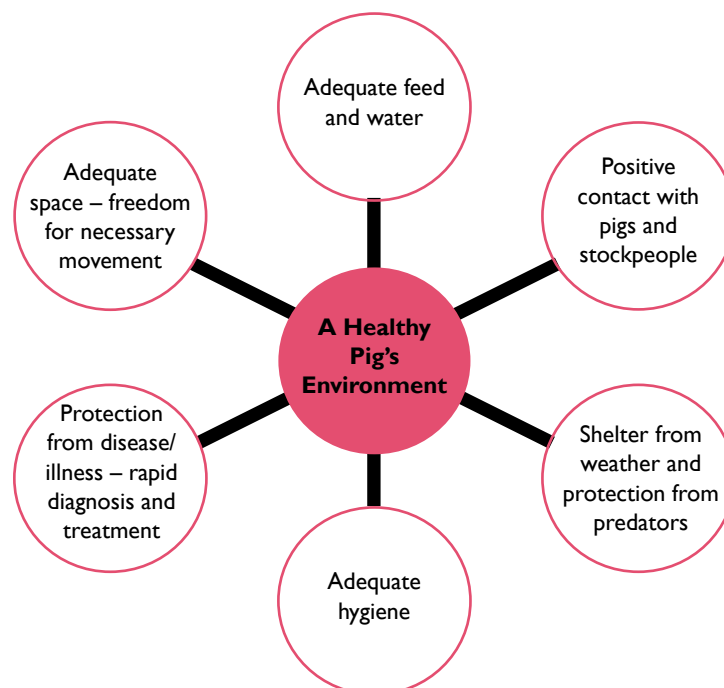
In pig production systems, the people – producers and their staff – have the important role of controlling and maintaining the pigs' environment to minimise incidence of disease and injury and maximise health, welfare and production. An unsatisfactory environment or inadequate health program puts the pigs at risk and may lead to welfare and health being compromised.

All facilities should be designed to minimise risk of injury to pigs and stockpeople and ensure efficient handling and optimum pig health and welfare.

A healthy environment for pigs should include:

- Easy access to appropriate and sufficient quantity of food and water;
- Adequate shelter to protect pigs from extreme heat and cold and from predators;
- Adequate hygiene and a clean, dry place to lie;
- Handling by stockpeople which minimises unreasonable or unnecessary pain or distress;
- Protection from, and/or rapid diagnosis and correct treatment of injury or disease;
- Adequate space for necessary movement including ability to stand, stretch, and lie down; and
- Visual and social contact with other pigs.

Figure 1: Components of a Healthy Pig's Environment



1.5 Stockperson competency and the Model Code

Ensuring you and your staff have the right skills to look after your pigs will help maximise pig health and welfare.

The competence of the stockperson (or anyone responsible for pigs) is one of the main requirements of the Model Code and associated state regulations. Stockperson competency is also considered internationally to be one of the most important factors in ensuring the welfare of pigs. Under Model Code Standards (and associated state regulations) from March 2011 onwards, piggery stockpeople are required to be able to prove that they are competent to perform their role of caring for pigs.

While most pig producers and their staff are competent in their role, many do not have formal qualifications. For this reason, obtaining Recognition of Prior Learning (RPL) and providing access to further training for as many producers and piggery stockpeople as possible, is an industry priority. In consultation with producers, Registered Training Organisations (RTOs) and other key stakeholders, APL has developed a stockperson skill set and a process for Recognition of Prior Learning and Competency certification for stockpeople in the pork industry. It is highly recommended that people caring for pigs undertake the stockperson skillset or obtain recognition of prior learning to ensure they are considered competent under state regulations, and to ensure they are properly equipped to make decisions about compromised pigs.

Visit the APL website www.australianpork.com.au or see the APIQ[✓]® Reference Manual at www.apiq.com.au for more information about stockperson competency requirements.

1.6 Signs that a pig may be compromised

A well trained stockperson with a good set of eyes can assess the pigs' needs through their behaviour and appearance. Initial signs that a pig may be compromised include:

- Lying apart from other pigs
- No vocalisation and playing
- Arched back and drooping tail
- Pig not interested in you and little response to your handling
- Hot to touch (fever)
- Sunken flanks (sides)
- Laboured breathing or coughing
- Diarrhoea
- Uncoordinated or difficult movement on one or more legs
- Discharge from nose or eyes
- Skin colour change – pale, blue, red, spots

- Pigs coats are “hairy” or rough looking
- Poor condition compared to similar-aged pigs in the pen
- Unwillingness to rise to its feet or walk
- Trembling
- Unwillingness to eat or drink.

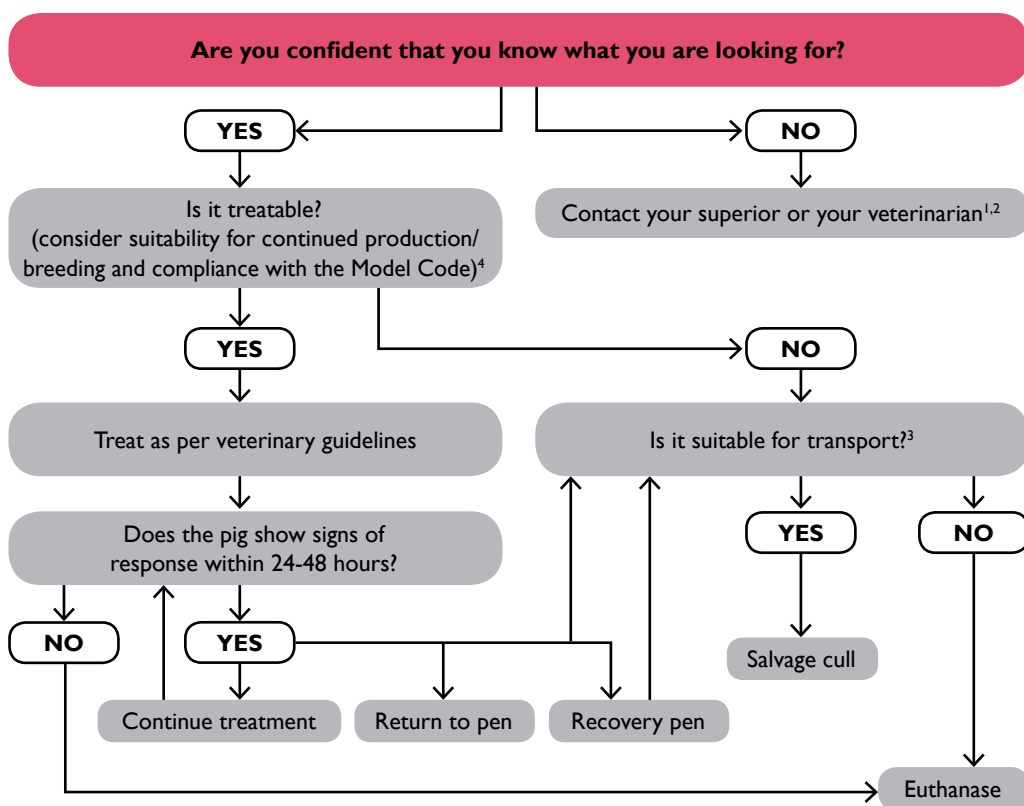
If in doubt ask your veterinarian!

Section 2 provides more detailed information on visual assessment of a group of pigs. Section 3 provides more detailed descriptions, and images of the appearance of specific conditions.

1.7 Decision Making Tree for Care of Compromised Pigs

The following decision making tree has been designed to help you assess compromised pigs and make a decision about whether to treat, cull or euthanise the pig on-farm. It is important to keep records of your decisions, including chosen treatments and their outcomes, as you may need to refer back to them, or be able to spot a trend.

Figure 2: Decision Making Tree for Care of Compromised Pigs



¹ Herd Health Plan, ² Vet Treatment Guide, ³ 'Is it Fit to Load?' Guide, ⁴ Welfare Code of Practice
Source: Australian Pig Veterinarians Sick and Injured Pig Guidelines for Veterinarians 2011, page 8

1.8 Options for Management of Compromised pigs

Once you have identified that a pig may be compromised you need to decide what to do with it. Options and decisions you will need to consider include:

- **Movement to hospital pens:** Unless otherwise indicated by your veterinarian, if compromised pigs can walk, eat and drink on their own, they should be moved into designated “hospital” pens or areas for close observation and treatment.
- **Treatment:** It is important to make a decision about treatment and administer it as soon as possible to prevent pig health and welfare from deteriorating. Consult with your herd veterinarian to develop a herd health program with treatment strategies and protocols for dealing with common ailments. Don't forget to keep treatment records of any medications or chemicals used in/on/around pigs (see Appendix I for treatment recording sheets).
- **Transport and Cull:** If pigs are fit for transport, it may be appropriate to cull the pig from the herd. Choose a suitable time to move the pig and if going to slaughter, ensure all medicine Withholding Periods (WHPs) and Export Slaughter Intervals (ESIs) have been observed. Refer to the *'Is it Fit to Load?' Guide (1st Edition, 2010)* for more information.
- **Euthanasia:** If treatment is not an option, all animals unfit for transport or human consumption should be euthanised on-farm. It is illegal to load or transport an animal that is considered unfit as per the Transport Code (refer to the *'Is it Fit to Load?' Guide (1st Edition, 2010)* for advice on specific conditions).

1.8.1 Before Loading Pigs for Transport

Remember, it is unacceptable to load or cause to load, any animal that is sick, or injured that would suffer unduly due to transport. This includes non-ambulatory animals.

Before loading any pig, ask yourself:

- Can the pig walk unassisted?
- Will it be able to walk off the truck (unassisted) at the destination?
- It is fit to be loaded and transported in accordance with the Transport Code *'Is it Fit to Load?' Guide (1st Edition, 2010)?*

If the answer to any of these questions is “no”, you will need to decide promptly whether to treat or euthanise it on-farm. Contact your veterinarian for advice on specific situations. As a general rule, **if in doubt leave it out!** Refer to the *'Is it Fit to Load?' Guide (1st Edition, 2010)*, for further information.

1.8.2 Before Sending a Pig for Slaughter

It is important to ask yourself:

- Have all withholding periods for all chemicals and medications used in and around the pigs expired?
- Is the pig fit for human consumption?
- Would I eat it?
- Is it fit to be loaded and transported in accordance with the Transport Code / *'Is it Fit to Load?' Guide (1st Edition, 2010)*?

If these conditions cannot be met, pigs should either be placed in a hospital pen and treated appropriately until all these conditions can be met; or, humanely euthanised on-farm. Also remember to keep records of these decisions so that you can review if needed, and spot problems before they get out of hand.

Remember: if in doubt, leave it out!

1.8.3 Treatment in Hospital Pens

There are many different types of "hospital pens" (i.e. old farrowing crates, pens, an eco-shed etc.) in which compromised pigs may be treated. There must be easy access for pigs to enter and exit the pen and to enable twice daily monitoring, recording and treatment of pigs. Flooring must be dry - bedding material is ideal. Pens should be well ventilated with no draughts. A covered area should be available and a heat source may be required depending on pig size/age. There must be easy access to clean, cool water - troughs and bowl drinkers are ideal - and easy access to clean, good quality feed. Pigs in the sick pen may need a companion of a similar size. Each hospital pen should be of adequate size to hold up to 10 wean to finish pigs or up to three sows to allow for easy observation. For space requirements, ensure compliance with the Model Code.

Only pigs that can walk eat and drink unaided should be put in a hospital pen. The only exception is pigs with meningitis but they must be able to walk within 24 hours of first treatment and must be protected from trauma/stimulus. It is recommended that you seek veterinary advice for managing pigs with nervous signs. All hospital pen pigs should be tagged with a numbered ear tag and treated as individuals on entry.

Treatment (if any) as recommended by your veterinarian should be administered to pigs in hospital pens. **Records must be completed for all pigs in the hospital pen** in accordance with your veterinary consultant's advice or the requirement of your quality assurance program (e.g. APIQ[✓]® requirements). **Response to treatment and/or condition of each pig in the hospital pen must be assessed at least twice daily.**

Once recovered, pigs should be removed from the hospital pen once treatment has finished (usually three days) and placed into a recovery pen to prevent harassment of compromised pigs entering hospital pen. In some areas you will need a hospital pen and a recovery pen as pigs that are too small to sell, but have recovered from their ailment, should never be put back in the general population due to risk of bullying.

All pigs in a hospital or recovery pen must be:

- Clearly identified and able to be cross-referenced with relevant treatment record/s.
- Checked at least twice daily by a competent stockperson, and treated where relevant.
- Easily able to access feed and water. Where they are not able to do this on their own, for example where their mobility is impaired, feed and water must be provided to them at least twice daily, more often according to conditions, and these activities should be recorded on treatment sheets/hospital records.
- Stocked with consideration given to size, age, condition (illness/injury) and severity. For example, small pigs should not be housed with large pigs, pigs with infectious conditions e.g. scours/coughing should not be housed with pigs with injuries, and pigs under treatment should not be housed with recovering pigs. In most cases pigs should not be housed in isolation. Exceptions include but may not be limited to pigs suffering from meningitis.
- It is recommended that compromised pigs be housed such that pigs actively under treatment, pigs with compromised ability to access feed or water, and pigs that might otherwise be subject to compromised welfare, are housed separately to pigs that are recovered, recovering, or otherwise able to adequately ambulate, access feed and water, and that are not likely to be subject to bullying or other negative welfare outcomes. It is recommended that housing strategies for compromised pigs include:
 - Hospital pens – for pigs actively undergoing treatment and/or with compromised ability to access feed or water and/or pigs that might otherwise be subject to compromised welfare.
 - Recovery pens – for pigs that are recovered, recovering and/or otherwise able to carry out basic eating/drinking/behavioural functions without risk of compromised welfare.
 - Return of pig to general pig population where no evidence of potential compromise to pig welfare is deemed likely¹.

And remember, if in doubt, ask your vet!

1.8.4 Euthanasia

If all other management options have failed or are unsuitable, and the pigs' condition is deemed to be deteriorating, the animal should be humanely euthanised.

Signs that a complete timely recovery is unlikely and humane euthanasia is required include:

- Pain is being shown despite the animal receiving pain relief.
- Animal body condition is deteriorating.

¹ Australian Pig Veterinarians "Sick and Injured Pig Guidelines for Veterinarians 2001"

- Animal's original condition, that is being treated, is the same or worse following appropriate treatment.
- Animal has developed another condition – i.e. pig lame in one leg then becomes lame in another leg as well.

Since a veterinarian is often not on hand for timely euthanasia of pigs, someone on the property should be trained to perform euthanasia on-farm. If you decide that euthanasia is the best option for a pig, you will need to select the most suitable method. **A detailed section on euthanasia methods has been provided in Section 4 of this guide.** The Model Code also contains information and standards to be considered for euthanasia.

You should consult your veterinarian for specific instructions on euthanasia techniques and methods to best suit your situation.

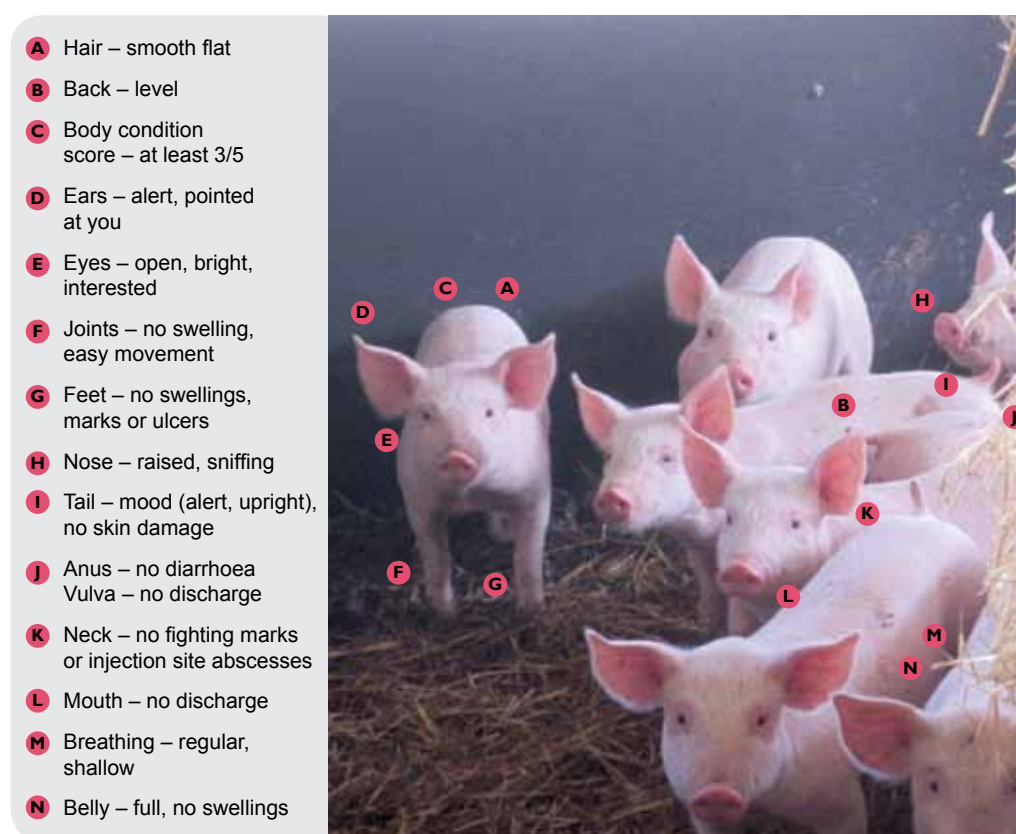
2 Visual assessment of a group of pigs

The APIQ[✓]® PigCare assessment, is a good on-farm tool for conducting a comprehensive assessment of the welfare of a group of pigs. This section provides a general guide to assessment of a group of pigs, in order to identify any compromised animals.

2.1 Features of a normal healthy group of pigs

To begin with, it is important to know what a normal, healthy group of pigs should look like. The diagram below points out some of the features, of a normal group of pigs:

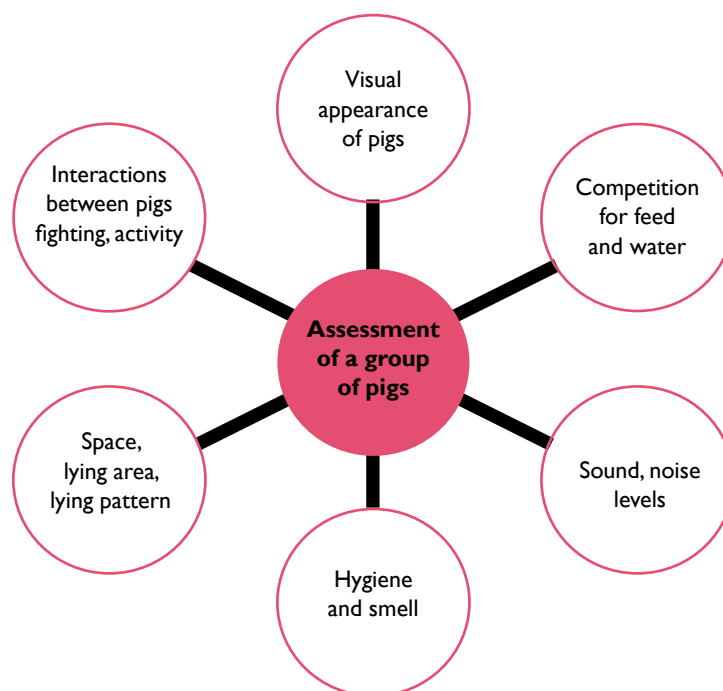
Figure 3: Features of a normal, healthy group of pigs



Note: See Appendix I for a body condition scoring chart for pigs.

2.2 Visual assessment of a group of pigs

Figure 4: Things to look for when assessing a group of pigs



When assessing a group of pigs, the diagram above and the pictures and points below, will help you think about what to look for.

When assessing a group of pigs:

DON'T disturb them – Always try to assess a group of pigs before disturbing them – this enables accurate assessment of feed/water access and lying behaviour. Take note of the time of day as this will affect the pigs' expected activity level.

LOOK for activity/fighting around feeders and drinkers – There should not be any fighting over feeders or drinkers.

LOOK for where and how pigs are lying – Is there adequate clean bedding for pigs to lie on? Are pigs defecating in the lying area?

Pigs will defecate in areas that are cold, wet and private (corners). The defecating pattern indicates the location of draughts for the shed.

LOOK for pigs that are different to their peers – Smaller, dirty, unable / slow to walk, coughing, diarrhoea, poorer body condition, ears held back, hunched back, uncoordinated.

SMELL and SOUND – Use your senses to detect distinctive smells (for example – the smell of scours) or sounds (coughing / sneezing) associated with particular diseases.

Check access to water:

Check pigs have easy access to functional drinkers – Water flow rate (0.5L/min to 2L/min depending on class of pig). This can be easily checked by unclamping the hose from the drinker and checking its flow rate over one minute into a 500 ml container.

To check the drinker flow rates you will need a watch with a second hand. Fill the container from the nipple drinker and record how much time it took to reach the 500 ml level.

The calculation to work out the flow rate is: **Flow rate (ml/min) = 500 x 60/ time (sec)**

- There should be one drinker per 10–15 pigs. At least two drinkers per pen.
- Difficult access – blocked by other pigs, too high/low. Pigs should be able to access drinkers easily without having to stretch/reach e.g. At 90 degrees with at least a shoulder width between drinkers.
- Drinker blocked or water turned off – Check daily that drinkers are working – potential sign there is a problem with water is that pens and pigs are very clean and dry.

Figure 5: Pigs unsuccessfully trying to access water



Check access to feed:

- Check pigs have easy access to feed.
- Ad lib feeding – one feeder space per 10–15 pigs.
- Restricted feeding – all pigs must have equal access to feed.
- Difficulty accessing feed may be due to – feeders blocked by other pigs, feeders located too high/low, or feeders may be partly/fully blocked.
- Pigs should be able to access feeders at 90 degrees with at least a shoulder width between feeder spaces.
- Each feeder space should be wide enough to fit the pig's head.

Check pigs are not overcrowded:

- There should be enough clean, dry pen-space to allow all pigs to lie comfortably.
- Cooling system appropriate for the class of pig and air movement is needed for hot weather.
- Remember that pigs in hospital pens require a source of cooling too.
- Outdoor pigs require appropriately managed wallows.

Figure 6: Pigs Overcrowded



Check pigs are not too cold/hot:

- The best indicator of temperature is the pigs' behaviour. If they are huddled up with legs up under them they are probably cold; and if they are spread out away from other pigs they are probably hot.
- Provide heating or a covered area to trap heat.
- Prevent constant draughts in lying areas (e.g. with barriers).
- Provide adequate depth and coverage of clean bedding - in bedded systems.
- There are different temperature requirements for different aged/ sized pigs (Model Code of Practice for Welfare of Animal's Pigs (3rd Edition, 2007). Sick pigs have a higher temperature requirement. Table I below has been provided as a guide.

Figure 7: Pigs huddling with legs tucked under – cold



Table I: Guide to temperature requirements for different classes of pigs

Class of Pig	Temperature Requirements
Piglets	<ul style="list-style-type: none">• First 48 hours 32-36°C• Rest of the first week 30-32°C• At 3 weeks 26-28°C• At 4 weeks 24-26°C
Weaners	<ul style="list-style-type: none">• 26-28°C for 21 day weaning• 24-26°C for 28 day weaning• Reduce temperature each week to 22-24°C at 4 weeks post weaning
Growers/Finishers	<ul style="list-style-type: none">• Target range 16-26°C, but aiming for 20-24°C with less than a 6°C fluctuation in 24 hours
Dry Sows/Boars/Gilts	<ul style="list-style-type: none">• 15-26°C aim for 18-24°C
Lactating sows	<ul style="list-style-type: none">• 15-26°C aim for 18-24°C

(Source: *The Good Health Manual*, PRDC, page 139)

3 Assessing and managing specific conditions in pigs

This part of the guide is designed to help producers assess animals at risk and make responsible decisions about their management. It features quick reference photographs, short descriptions of common conditions, and provides guidelines for humane handling of compromised pigs with these conditions. Please discuss individual cases with your veterinarian to clarify the specific actions required. Where treatments are given, all VHPs (and ESIs if going an export processor) must be finished out before any pig is sent for slaughter. See Appendix 4 for further guidance.

3.1 Leg Conditions

Pigs can be affected with various leg conditions include anything from swellings to lameness of varying severity. Some examples of conditions that cause leg problems are arthritis, abscesses, fractures and skin ulcers in the joint area. With leg problems, it is important to determine an animal's lameness class, discomfort or pain.

Since flooring (gaps too large, floor too rough or too slippery) can often contribute to lameness, a change of flooring (preferably to dirt or straw bedding) and pain relief is indicated to assist with assessment of severity of lameness. You can use the table below as a guide to assist with assessment of severity of lameness. If you are unsure, check with your vet.

Table 2: Assessment of Severity of Lameness

Lameness Class	Description	Producer Action
Class 1	Visibly lame but can keep up with the group; no evidence of pain.	Transport to slaughter.
Class 2	Unable to keep up with the group; some difficulty climbing ramps.	Load last on the truck in the rear compartment. Group with other Class 2 pigs of same weight class. Transport directly to slaughter as soon as possible.
Class 3	Requires assistance to rise, but can walk freely.	Separate this pig and transport in a separate compartment.
Class 4	Requires assistance to rise; reluctant to walk; halted movement; unable to climb steep ramps.	Consider on-farm slaughter in compliance with all regulations if pig is suitable for owner consumption. EUTHANISE on-farm if not suitable for owner consumption or for transport.
Class 5	Unable to rise or remain standing; downer or splayed; broken legs; extreme discomfort or vocalisation with assisted movement. Immediate on-farm euthanasia is recommended.	EUTHANISE on-farm if not suitable for owner consumption or for transport.

(Source: *Caring for Compromised Pigs*, Ontario Farm Animal Council)

Once lameness severity has been assessed (day after pain relief +/- antibiotics has been provided), a decision can be made to either treat or euthanise:

Producer Actions for leg conditions:

- Check pigs regularly for leg conditions.
- If the animal can stand (weight-bear) on all legs, administer pain relief and (if possible) change of flooring can be implemented along with medication (if necessary).
- If the animal cannot stand (non-weight-bearing) on one or more legs, they should be euthanised. This includes if the animal has an obvious/suspect broken leg, is in extreme distress when encouraged to stand, is partly or wholly paralysed, and if there has been no response to recommended veterinary treatment within 24 hours.

The table below and the pictures that follow provide more specific response and prevention measures for common leg and joint conditions. If you are unsure about anything, check with your vet.

Table 3: Response and Prevention for Common Leg/Joint Conditions

Common Leg Conditions	Producer Actions	Prevention
Splay legs	Tape legs soon after birth. If severely splayed back and front euthanise.	Improve slippery floors. Ensure mycotoxin binders are used in dry and lac sow feeds. Select against splay legs.
Joint infections and general abrasions	Treat according to farm Approved Medication List (AML) recommendations or the recommendations of your vet. If not responding to recommendations, euthanise.	Ensure that all equipment used for litter processing is kept clean and sterile (piglets only). Change soiled bedding regularly; and keep pens well maintained, dry and clean.
Trauma to claws	Treat according to farm AML recommendations or the recommendations of your vet. If not responding to recommendations or if trauma is severe and associated with weight bearing portion of foot, euthanise.	Keep pens well maintained, dry and clean. Clean and disinfect between groups of pigs.
Bush Foot	If pig can walk and bear weight on foot, treat according to farm vet's recommendations or the farms AML recommendations and cull ASAP. If not responding to recommendations, euthanise.	Treat foot problems promptly. Ensure diet specifications are correct to minimise deformation issues.
Overgrown claws	If possible trim claws or cull if able to walk unaided.	

3.2 Weight Bearing Leg Conditions

3.2.1 Bursitis (not lame)

Bursitis is a common condition that arises from constant pressure and trauma to the skin overlying any bony prominence.

Producer Action:

- No skin ulceration (as pictured) – NO TREATMENT NECESSARY.
- Skin ulceration – TREAT in hospital pen.
- Skin ulceration exposing muscle/ tendon/bone – EUTHANISE.

Figure 8: Bursitis (not lame)

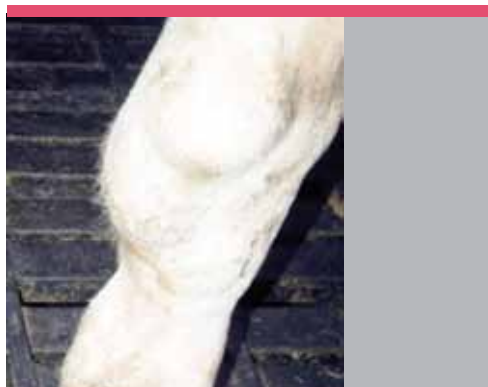


3.2.2 Joint Infection

Producer Action:

- Single joint affected (as pictured) – TREAT (sometimes drainage is indicated).
- Multiple joints affected – EUTHANISE.

Figure 9: Joint Infection



3.2.3 Infected Foot

Pigs can be affected with various leg problems, ranging from mild to crippling, non-painful to extremely painful.

Producer Action:

Follow recommended veterinary advice and procedures.

Figure 10: Infected Foot



3.2.4 Hock Sore (not lame)

Producer Action:

- Small wound – TREAT – provide prompt medical care.
- Large wound and/or not healing following treatment – EUTHANISE.

Figure 11: Hock Sore (not lame)



3.3 Other leg conditions

3.3.1 Piglet Lameness

Producer Action:

- Able to compete with littermates and is a recent infection – TREAT – provide prompt medical care.
- If unable to compete with littermates and not able to bear weight – EUTHANISE.

Figure 12: Piglet Lameness



3.3.2 Splay Leg Piglet

Can be congenital or result from slippery floors/trauma.

Producer Action:

- Back legs only – TREAT (tape) – Taping the legs provides the piglet with support. There are various ways to tape a piglet with splay leg – consult your vet for these methods.
- Front and back legs affected – EUTHANISE.
- No improvement after having being taped appropriately for three days – EUTHANISE.

Figure 13: Splay Leg piglet



3.3.3 Trauma–Claws

Categories:

- Dew claw missing – TREAT.
- Whole claw missing on weight bearing section of foot – EUTHANISE.
- Part of claw missing on weight bearing section of foot – TREAT.
- Missing whole or section of claw with associated hard swelling – EUTHANISE.

Figure 14: Trauma–Claws



3.3.4 Bush/Club Foot

Producer Action:

- One foot affected, animal not having difficulty standing/walking and body condition not affected – TREAT and cull ASAP if fit to load, otherwise EUTHANISE.

Figure 15: Bush/Club Foot



3.3.5 Overgrown Claws

More common on plastic floors and in outdoor/free range systems.

Producer Action:

- TREAT (trim claws) and/or cull ASAP if able to easily walk unaided (fit to load).
- Prevent for future groups of pigs by providing access to abrasive flooring (concrete).

Figure 16: Overgrown Claws



3.4 Skin Conditions

Skin conditions may be infectious or non-infectious. Infectious causes include mange, greasy pig disease, erysipelas and porcine dermatitis nephropathy syndrome (PDNS). Non-infectious skin conditions include shoulder skin damage/pressure sores (reflection of rough floors, rubbing against sow stall bars, poor body condition score), flystrike, mosquito bites and injection site abscesses from vaccines/medications (poor hygiene or injecting wet/dirty skin).

Table 4: Response and Prevention for Common Skin Conditions

Common Skin Conditions	Response	Prevention
Wounds and pressure sores	Treat according to farm Approved Medication List (AML) or vet recommendations. If severe remove to a hospital pen. If not responding to recommendations – euthanise.	Keep pens well maintained, dry and clean. Maintain condition of breeders. Clean and disinfect between groups of pigs.
Abscess	If small, continue to monitor twice weekly. If abscess is large, remove to hospital pen and treat according to vet recommendations or AML. If large or ulcerated, remove to hospital pen, treat according to farm AML or vet recommendations, review condition twice daily. If no improvement within three days, euthanise.	Ensure good hygiene practices are followed during vaccination/injectable medication procedures i.e. change needles regularly, ensure pens and pigs are clean and dry, store medications according to vet recommendations, use correct needle sizes for different classes of pigs.
PDNS (Porcine dermatitis and nephropathy syndrome)	Treatment not usually effective. If not severe, send to abattoir if fit to load. If symptoms are severe, euthanise.	Consult farm veterinarian.
Mange	Treat according to farm vet's recommendations or AML.	Discuss eradication or control program with farm vet.
Erysipelas	Treat according to farm vet's recommendations or AML. If symptoms mild i.e. characteristic diamond lesions with little other symptoms apparent, send to abattoir when fit to load and when WHP (or ESI) is reached. If symptoms severe, monitor twice daily and if there is no improvement within two days, euthanise.	Review vaccination program if large numbers of pigs are affected.
Greasy Pig Disease	More common in younger pigs especially suckers. Very severe cases should be euthanised. Early treatment can be successful. This includes washing with antiseptic hand wash/mild soap, drying and then rubbing paraffin oil into skin. Treat according to vet's or AML recommendations for wounds.	Prevent skin damage from fighting (cut teeth). Improve hygiene in the farrowing and weaner sheds. Improve ventilation to reduce humidity.

Common Skin Conditions	Response	Prevention
Defective skin or Epitheliogenesis imperfecta	In this condition the pig is born with an area that does not have any skin. For small sections treat as for small wounds per AML or vet recommendations. If large areas are involved, piglet should be euthanised.	Congenital defect. If large numbers are born, consult farm vet.
Ringworm	Circular areas of skin that appear light brown to dark grey in colour. Treat according to AML or vet recommendations, usually with one per cent savlon or hexetadene skin disinfectants or fungicides.	If large numbers are affected, consult farm vet.
Pityriasis rosea	Condition starts as small scaly marks which gradually expand to form crater like lesions with scaly rims. The condition is self-limiting with the pigs recovering usually within six weeks, with treatment being necessary.	Congenital defect. If large numbers are affected, consult farm vet.
Swine Pox	Mainly affects young piglets. In utero infections are also possible. Disease is caused by a virus. Seek vet advice. Treat for secondary infections as per vet's or AML recommendations.	

3.4.1 Shoulder Pressure Sore

Figure 17: Shoulder Pressure Sore

Producer Action:

- Pig in poor body condition score (BCS) lower than 3/5 (see the Model Code) – TREAT or EUTHANISE.
- Pig in good BCS of 3/5 or more – TREAT as skin wound.



3.4.2 Abscess

An abscess is a localised occurrence of pus in a cavity of disintegrated tissue. Minor abscess can be treated on-farm. Multiple abscesses are often a sign of an infection affecting body tissue, which makes the carcass unfit for consumption and often results in condemnation at the plant. Usually, if three or more abscesses are visible on the animal, there may be additional abscesses internally.

Producer Action:

- Check pigs for abscesses regularly.
- For small abscess (as pictured) – NO TREATMENT NECESSARY.
- Large abscess – TREAT in hospital pen (draining usually required).
- When there is a high incidence of pigs with abscesses, identify the source of the problem.
- EUTHANISE pigs on-farm if they have multiple severe abscesses.

Figure 18: Wounds



3.4.3 Wounds

If a pig is cut, grazed or wounded, producers must assess the severity of the injury. Like most animal health conditions, the key is to notice and assess the injury and act immediately.

Producer Actions:

- Observe pigs for cuts and wounds regularly.
- Separate pigs with wounds to a hospital pen to prevent aggressive pigs from further aggravating the problem.
- For small to moderately sized wounds (as pictured) where the pig can move freely, separate, treat and/or identify and send it to slaughter.
- For large wounds when the pig is in severe pain:
 - Separate and treat immediately as per vet advice.
 - Transport to emergency slaughter or EUTHANISE animal on-farm if it is not humane to transport.

Figure 19: Porcine Dermatitis



3.4.4 Porcine Dermatitis and Nephropathy Syndrome (PDNS)

PDNS occurs mainly in growers and finishers, 12–14 weeks of age and sporadically in other age groups.

The most striking sign in live clinically affected pigs is the appearance of extensive purplish red slightly raised blotches of various sizes and shapes over the chest, abdomen, thighs and forelegs.

Over time the blotches become covered with dark crusts and then fade leaving scars. The pigs are depressed and may have a fever. They are usually reluctant to move or eat, and have lost weight.

Producer Actions:

- Send to abattoir if fit to load ASAP.
- Treatment usually not effective. EUTHANISE if symptoms are severe.

Figure 20: Mangy Pig



3.4.5 Mange

This common parasite is found in pigs worldwide. Rubbing or scratching indicates the presence of mange which leads to the pigs becoming itchy and therefore scratching. Mange affects all age groups.

Producer Actions:

- Follow recommended veterinary procedures and discuss implementing a mange control program.

Figure 21: Erysipelas



3.4.6 Erysipelas

Swine erysipelas is caused by a bacterium, *Erysipelothrix rhusiopathiae* that is found in most if not all pig farms. Up to 50 per cent of animals may carry it in their tonsils. It is always present in either the pig or in the environment because it is excreted via saliva, faeces or urine. Disease is relatively uncommon in pigs under eight-12 weeks of age due to protection provided by maternal antibodies from the sow via the colostrum. The most susceptible animals are growing pigs, non vaccinated gilts and up to fourth parity sows.

The organism multiplies in the body, and invades the bloodstream to produce a septicaemia. The rapidity of multiplication and the level of immunity in the pig then determines the clinical symptoms.

Producer Actions:

- Pig with active infection and fever (+/- raised diamond lesions) – TREAT.
- Pig with faded skin lesions – send to abattoir if fit to load. Be advised of appropriate withholding periods (or export slaughter intervals).

A vaccination program should be implemented to reduce further pigs being affected.

Figure 22: Greasy Pig Disease



3.4.7 Greasy Pig Disease

This is caused by the bacterium *Staphylococcus hyicus* which lives normally on the skin without causing disease. It is not known why sometimes it flares up and causes a dermatitis which oozes greasy fluid. It produces toxins which are absorbed into the system and damage the liver and kidneys.

It is characterised by localised lesions on the flanks and behind the ears. Lesions usually commence with small, dark, localised areas of infection around the face or on the legs.

Producer Actions:

- TREAT (and remove underlying cause such as **tail biting, ear biting, navel sucking, flank biting**).
- Vaccinations may be considered as a source of prevention.

Figure 23: Ringworm



3.4.8 Ringworm

Infected skin shows gradually increasing circular areas of light to dark brown discoloration behind the ears and on the back and flanks. Affected pigs are not itchy.

Producer Actions:

- TREAT using skin disinfectants or fungicides.

Figure 24: Pityriasis Rosea



Figure 25: Swine Pox



3.4.9 Pityriasis Rosea (congenital)

This is a sporadic condition seen in young pigs from three to 16 weeks of age. It is characterised by large coalescing ringworm like lesions that often start on the abdomen and spread up behind the back legs and ultimately in severe cases involve the whole of the body. The lesions are characteristic and the condition naturally resolves itself over six to eight weeks.

The pig is not ill and grows normally although it looks alarming. Pigs are not itchy.

Producer Actions:

- NO TREATMENT NECESSARY.

3.4.10 Swine Pox

Swine pox presents as small circular red areas 10-20 mm in diameter that commence with a vesicle containing straw-coloured fluid in the centre. After two to three days the vesicle ruptures and a scab is formed which gradually turns black. The lesions may be seen on any part of the body but are common along the flanks, abdomens and occasionally the ears.

Affected pigs are not itchy.

This is a disease caused by the swine pox virus which can survive outside the pig for long periods of time and is resistant to environmental changes.

Producer Action:

- TREAT for secondary infections if required.

3.5 Hernias

A hernia is a rupture or protrusion of an organ through an opening in the surrounding wall. Hernias can occur when there is trauma to, or weakness in the muscles of the belly (umbilical hernia) or inguinal/scrotal region allowing tissue to penetrate through and bulge. Hernias generally do not cause the affected pig any pain, unless the skin surface is damaged or gut penetrates through and is twisted.

In many cases, if the hernia is not large enough to be a problem, the animal can be monitored until it reaches market weight. If the hernia becomes large and touches the ground or causes the skin to slit open from pressure, action must be taken. Severe hernias should not be allowed to reach the point of skin damage or cause the animal to lose condition or have difficulty moving around.

Table 5: Response and Prevention for Hernias

Hernia Type	Response	Prevention
Umbilical or scrotal	<p>Identify hernias and monitor size.</p> <p>If hernia is small, doesn't touch the ground or impede pig movement, send to abattoir as soon as possible.</p> <p>If hernia is large or ulcerated, or impedes pig movement, euthanise.</p>	<p>Keep track of hernias to see whether they may be related to the dam or sire.</p> <p>If the hernias occur at a similar time, investigate whether this is linked to a change e.g. feed, housing.</p> <p>Overcrowding and huddling due to cold causes pigs to pile on each other. This can lead to an increase in abdominal pressure and an increase in hernias.</p> <p>If carrying out surgical castration, delay until three to five days of age and handle piglets gently; don't squeeze their abdomens. During castration don't pull and stretch to break the cords; cut the cords cleanly to reduce stretching as this can predispose a piglet to a hernia.</p> <p>Always handle piglets gently.</p>

Producer Actions:

- Identify hernias and monitor size.
- If hernia is small or medium in size and skin not ulcerated, not impeding movement and pig not losing body condition – TREAT or send to abattoir as soon as possible (if fit to load).
- If the hernia becomes damaged and is causing the animal pain, transport to slaughter immediately.
- If the pig has a large hernia that touches the ground, causes extreme difficulty walking or skin scraping, EUTHANISE on-farm.

Figure 26: Inguinal Hernia



Figure 27: Scrotal Hernia



3.6 Prolapses

A prolapse is a protrusion of an organ or part of an organ from its normal position due to inadequate strength of the supportive tissue. This is generally not a painful condition and sometimes, if not severe, can spontaneously resolve although they tend to reoccur.

Table 6: Response and Prevention for Prolapses

Prolapse Type	Response	Prevention
Rectal, Uterine, Vaginal	<p>Healthy pig with small rectal prolapse should be isolated and treated according to vet recommendations, or transported to abattoir individually as soon as possible.</p> <p>Pigs with a very large or damaged prolapse that is infected or not able to be replaced should be euthanised.</p> <p>For uterine or vaginal prolapses, if veterinary assistance is not available, the sow should be euthanised.</p>	<p>RECTAL PROLAPSES.</p> <p>Overcrowding and huddling due to cold causes pigs to pile on each other. This can lead to an increase in abdominal pressure and an increase in rectal prolapses.</p> <p>Pre-existing conditions which cause scours or excessive coughing can predispose the pigs to rectal prolapses.</p> <p>Constipation, mycotoxin presence in feed, sudden changes in diet are all predisposing factors to rectal prolapses.</p> <p>VAGINAL/UTERINE PROLAPSES.</p> <p>Not very common, but tend to occur in older sows that may have poor uterine muscle tone or have given birth to large litters or heavy birth-weight piglets. Can occur up to a day after farrowing. Monitor farrowings carefully to ensure that farrowing does not become a long, drawn-out process.</p>

3.6.1 Rectal Prolapse

Producer Actions:

- Observe pigs regularly for prolapses.
- Segregate pigs with prolapses and treat appropriately (replace / purse string suture under direct veterinary supervision).
- Send to abattoir for slaughter (if fit to load).
- If prolapse becomes infected, EUTHANISE on-farm.

Figure 28: Rectal Prolapse



3.7 Behavioural Vices

Vices such as tail biting, flank chewing and ear biting are abnormal behaviours resulting from a number of potential underlying factors including; high stocking density, mixing/moving pigs, lactation failure (facial necrosis), poor air quality (ammonia, carbon dioxide, hydrogen sulfide), temperature fluctuations, draughts, variability in tail length (tail biting), restricted or lack of access to feed and water. Other vices resulting in trauma may include anal biting, vulval biting and pizzle sucking.

Figure 29: Behavioural Vices

Flank Biting



Facial Necrosis



Ear Biting



3.7.1 Tail Biting

Producer Action:

- Observe pigs for signs of trauma.
- Tail biting - Remove wounded pig and the biter from the pen to prevent escalation of the problem (observe pigs twice daily if there are signs of biting).
- Treat wounds as necessary either in home pen or hospital pen depending on severity.
- If wound is large and the wound is extending into deeper body – EUTHANISE.
- Determine and remove cause of vices.

Figure 30: Two examples of tail biting

Tail Biting



Tail Biting



3.7.2 Pre-Weaning Diarrhoea

Producer Actions:

- Mild (not affecting body condition) – Antibiotics might not be required but provide electrolytes.
- Affecting body condition and energy of piglets – Appropriate antibiotics must be provided.

3.7.3 Post-Weaning Diarrhoea

Producer Actions:

- Mild (not affecting body condition) – Treat in home pen and provide electrolytes.
- Profuse diarrhoea (affecting pig condition) – Treat in hospital pen.

3.7.4 Coughing/Respiratory Disease

Producer Actions:

- Coughing/sneezing – Treat in home pen.
- Difficulty breathing – Treat in hospital pen.
- Open-mouth breathing – Treat in hospital pen or EUTHANISE.

3.7.6 Pigs Losing Condition

Producer Actions:

- Body condition score pigs regularly.
- Identify fallback and pigs losing body condition.
- Identify reason for loss of condition – e.g. illness, poor access to feeders, bullying, or poor nutrition.

3.7.7 Emaciation

The thin sow syndrome occurs over a period of months, with gradual declining body condition until 10–30 per cent of the animals have a condition score between 1 and 2. The syndrome arises due to inadequate nutrition or poor quality feeds failing to satisfy the bodily needs of the sow in that environment.

Producer Actions:

- Observe pigs for body condition regularly.
- Identify thin pigs early.
- Move thin pigs to hospital pen to allow them to access feed with less competition.
- Ship pigs that don't respond before they become emaciated.
- EUTHANISE extremely thin pigs on-farm. Do not send for slaughter.

3.7.5 Bullied Pigs

Producer Actions:

- Observe pigs for bullying.
- TREAT through separating the bullied and the pig bullying from the pen.
- Seek advice on management of groups (size, composition etc) to suit your situation.

Figure 31: Emaciated Pig



3.8 Other Conditions

Table 7: Response and Prevention for other Conditions

Condition Type	Response	Prevention
Tail, flank or ear-biting	Isolate pig and treat according to AML or vet recommendations for wounds. If condition is severe i.e. deep tissue damage and/or infection and pig not responding to treatment, euthanise.	Tail biting, flank chewing and ear biting are abnormal behaviours resulting from a number of potential underlying factors including; high stocking density, mixing/moving pigs, poor air quality temperature fluctuations, draughts, variability in tail length (tail biting), restricted or lack of access to feed and water. Other behaviours resulting in trauma may include anal biting, vulval biting and pizzle sucking.
Facial bites/necrosis	Isolate pig and treat according to AML or vet recommendations for wounds. If condition is severe and pig not responding to treatment, euthanise.	More common in herds where teeth are not clipped. May start in the farrowing shed where piglets may be fighting to attach to a teat or if sow is not milking properly. If sow is not the issue, clip teeth. If issues are occurring in the weaner shed, provide environmental enrichment and/or remove offending pig as well as the injured animal.
Conjunctivitis	Treat according to AML or vet recommendations.	Many causes, including viral, bacterial, chemical, and also allergic reactions. Condition is usually self-limiting and will resolve within a few days. Keep pens well maintained, dry and clean and clean and disinfect between groups of pigs. Use disinfectant at the recommended dilution.
Blindness	If condition is not affecting pig's ability to eat, drink, move or interact with others, and is not the result of a wound or trauma, no treatment necessary. If blindness is due to a wound treat according to AML. If non-responsive or if it interferes with pig's ability to eat, drink, move or interact with others, euthanise.	Keep pens well maintained.
Haematoma	Treat according to AML or vet recommendations.	Haematomas or "cauliflower ears" are the result of the accumulation of blood between the layers of the ear. They can be caused by fighting or by improperly handling pigs (i.e. grabbing them by the ear).
Head tilt (middle ear infection)	If condition is not affecting pig's ability to eat, drink, move or interact with others, treat according to AML or vet recommendations. If symptoms more severe e.g. associated with meningitis, convulsions, isolate and treat according to AML or vet recommendations. If non-responsive within two days, euthanise.	The middle part of the ear is responsible for balance and infection causes the piglet to hold its head on the affected side and to lose its balance. Keep pens well maintained, dry and clean and clean and disinfect between groups of pigs.

Scours	<p>Treat according to vet's recommendations or AML or vet recommendations.</p> <p>If condition non-responsive, and the pig is in poor condition, severe pain or illness is affecting pig's ability to eat, drink or move, euthanise.</p>	<p>Ensure vaccination program is being followed correctly.</p> <p>Keep pens well maintained, dry and clean and clean and disinfect between groups of pigs.</p>
Coughing or breathing difficulties	<p>Coughing or sneezing- treat according to AML recommendations.</p> <p>Difficulty breathing (thumps or dog-like posture) isolate and treat according to AML recommendations.</p> <p>Severe distress, open-mouth breathing - euthanise.</p>	<p>Ensure vaccination program is being followed correctly.</p> <p>Keep pens well maintained, dry and clean and clean and disinfect between groups of pigs.</p>
Rectal stricture	<p>Usually caused by a previous underlying infection and possibly a healed rectal prolapse. No effective treatment. As soon as stricture becomes evident, pigs should be sold if fit to load. If pig appears very bloated, euthanise.</p>	<p>Consider all preventive measures for rectal prolapses for rectal strictures.</p> <p>If large numbers are occurring at similar ages, veterinary investigation is warranted to determine whether infection is the cause and water medication is warranted.</p>
Fallback piglets	<p>If there are piglets in the farrowing shed that are losing condition with no other signs of ill-health, foster them onto a new mother ASAP. If sick treat according to vets recommendations or AML.</p>	<p>Ensure sow vaccination program is being followed correctly.</p> <p>Keep farrowing crates/pens well maintained, dry and clean and clean and disinfect between groups of pigs.</p> <p>Closely monitor piglets especially during the first two weeks of life to ensure piglets are picked up as soon as they start losing condition.</p>
Poor body condition	<p>Pigs losing condition should be isolated, treated according to vet's recommendations or your AML, provided with a high spec diet (to build condition) and stockperson should ensure that they are not being bullied.</p> <p>If condition score falls to less than 2 and they fail to respond to treatment, euthanise.</p>	<p>Ensure vaccination program is being followed correctly.</p> <p>Keep pens well maintained, dry and clean and clean and disinfect between groups of pigs.</p> <p>Ensure that there are sufficient feeder spaces and drinking nipples for the number of pigs in the pen.</p> <p>Ensure correct stocking rates are maintained.</p>

4 Considerations for on-farm euthanasia

Unfortunately, despite your best efforts to look after your pigs, situations that require pigs to be humanely euthanised can still arise. Since it is usually not possible or practical for a vet to come out and perform timely euthanasia of pigs on-farm, producers and their staff will need to know how to perform humane euthanasia should the need arise. It is essential that at least one person on your property is trained in humane euthanasia techniques and can accurately select and carry out the appropriate method. For the euthanasia process or method to be considered humane, it must be quick, effective and reliable. This section will provide you with some guidelines for selecting and carrying out the appropriate method of euthanasia.

4.1 What is euthanasia?

Euthanasia means to cause the humane death of an animal without distress, pain, fear or anxiety. In pig production euthanasia is a last resort management strategy used to put an animal out of its suffering when all other appropriate strategies have failed to improve its health and welfare.

The objective of humane euthanasia is a “good death” whereby life is ended without pain or distress to the pig. This requires techniques that induce immediate loss of consciousness followed by cardiac and respiratory arrest which results in loss of brain function and death.

What makes a method of euthanasia humane?

- There is minimal pain and distress to the pig during administration.
- There is rapid loss of consciousness.
- The pig’s death is achieved quickly and consistently.

4.2 Considerations when choosing a method of euthanasia

As a general guide, when choosing the right method for euthanasia, consider the following points.

- **Human safety** – the method of euthanasia chosen should not put producers and staff at risk.
- **Pig welfare** – choose the best method to minimise pain and distress of the pig. It should be suitable for the size, and condition of the pigs.
- **Skill of operator** – the person carrying out euthanasia should be trained to use the method chosen and competent to perform the task. Methods should be easily learned, repeatable and reliable.
- **Willingness of the operator** – You or your staff must be comfortable with the chosen method and ready and willing to perform the task when required.

- **Availability of equipment/facilities** – The availability of equipment, that is in working order and the availability of carcass disposal options can be limiting factors for choosing a method.
- **Legal and social responsibility** – The method chosen must comply with Model Code Standards and animal welfare regulations in your state. You must also consider your social responsibility i.e. would you be happy for a member of the public to see what happens on your farm.
- **Location** – Where practical the procedure must be done in a safe, quiet and private location.

Cost Implications for consideration:

For producers and their stockpeople, it can be difficult to decide whether to treat or euthanise a sick/injured, or compromised pig. The development of a euthanasia decision process can assist those involved in the daily well-being of pigs to recognise pigs that should be euthanised.

In times when input costs are high compared to the returned value, it is important for producers to evaluate their euthanasia process and make changes consistent with the needs of the production unit and the well-being of the animals.

Applying timely euthanasia protocols, producers can reduce input costs, such as feed and medication, given to pigs that are unlikely to recover or respond to treatment.

Producers should be aware that it is a requirement of state regulations that euthanasia is performed by a person who has been deemed *competent*. The industry strongly recommends there is at least one person on-farm that has received formal training, and has been assessed as competent in euthanasia.

Table 8: Methods for Euthanising

	PIGLETS <3 WEEKS OLD Birth – 6 kg	NURSERY PIG < 10 WEEKS 6-30 kg	GROWING PIG 30-75 kg	FINISHING PIG 75 kg +	MATURE
Carbon Dioxide	YES	YES	Not Practical	Not Practical	Not Practical
Gunshot	NO	YES (above 15 kg)	YES	YES	YES
Penetrative Captive bolt	NO	YES (above 15 kg)	YES	YES	YES
Blunt trauma	YES	NO (pigs less than 15 kg may be EUTHANISED using blunt trauma)	NO	NO	NO
FOR VETERINARIANS USE ONLY					
Anaesthetic overdose	YES	YES	YES	YES	YES

Table 9: Considerations for Specific Euthanasia Methods for Swine

	Risk to Human Safety	Skill Required	Aesthetics	Limitations
Carbon dioxide (CO ₂)	Moderate	Moderate to low, based on equipment design	Bloodless, some excitatory move mentor vocalisation possible in pigs	Currently only practical for small pigs
Gunshot	High	Moderate to high	Discharge of blood from wound	Security of firearms; legal restrictions
Penetrating captive bolt	Moderate	Moderate	Discharge of blood from wound	May be a two-step process depending on equipment design; maintenance of equipment
Blunt trauma	Low	Moderate	Some blood discharge; objectionable for some	Only applicable to small pigs (up to 15 kg)
Veterinarian administered anaesthetic overdose	Low	High, veterinary administration only	No blood discharge, limited pig movements	Applicable agents available only to licensed veterinarian; carcass disposal
Blunt trauma	Low	Moderate	Some blood discharge; objectionable for some	Only applicable to small pigs

4.3 Methods of euthanasia

The following section provides guidelines for the different euthanasia methods available.

4.3.1 Carbon dioxide (CO₂)

Carbon dioxide (CO₂) replaces oxygen in the body which causes the rapid onset of anaesthesia leading to death due to respiratory arrest. Although unconscious, pigs may experience involuntary vocalisations and movements when carbon dioxide is used correctly.

Euthanasia by carbon dioxide inhalation is considered inexpensive, however it does require special equipment to work effectively including;

- An enclosed, airtight container that is large enough for the size of pigs being euthanised is required.
- The container must be equipped with inlet and outlet valves.
- Due to carbon dioxide being heavier than air, the container's outlet valve should be located at the top.
- This way, the container can be completely filled with carbon dioxide while the air displaced is allowed to escape.

4.3.2 Gunshot

A gunshot to the head is an effective method of euthanasia of pigs because if done correctly, the impact caused by the penetrating bullet causes concussion and damage to vital areas of the brain of the pig. When choosing the type of gun and ammunition, consider the following:

- The age and size of pig to be euthanised.
- Presence and safety of onlookers, person delivering the shot and other pigs.
- Accessibility to the head of the pig.
- Damage to surrounding equipment and facilities.
- Risk of bullet pass through and ricochet.
- Legal restrictions and/or farm policies on having a gun on site.

Remember, the type of gun and load need to be large enough so the method is effective with the first shot. Ammunition choice also is important and it must have adequate energy to concuss and penetrate the skull with the first shot. Shooting in the heart or the neck is not a suitable for humane euthanasia.

Training in firearms is essential. The animal should be restrained by a rope or snare over the upper jaw held by an assistant who stands behind the shooter. These methods stun or kill by concussive force and penetration into the brain. A firearm must be held six to 20 cm from the skull (do not press against the forehead).

When euthanising a pig by gunshot, extra care must be taken to ensure human safety.

- The user of the weapon must be trained in firearm safety and understand the potential for ricochet.
- Onlookers or assistants should always stand behind the person delivering the shot.
- Restraint may be necessary. Ideally, the pig should be outdoors, on soil where the danger of a bullet ricocheting is reduced.
- Pigs that are non-ambulatory should be euthanised where they lie if there is no risk of ricochet or be humanely transported to a safe location.
- Regular cleaning and maintenance of the gun is important to ensure its good working order.

4.3.3 Captive (Penetrating) bolt

The captive bolt method stuns or kills by concussive force and penetration into the brain. The captive bolt gun should be placed firmly against the front of the head.

The penetrating captive bolt gun has a sharp-rimmed, concave bolt that extends and penetrates the skull to cause concussive and physical damage to the skull and brain upon impact. Correct positioning of the captive bolt gun is critical for success. The placement should be directed at the midline of the forehead, a 1.5 cm above eye level (even with the eyebrows). The penetrating captive bolt should be placed very firmly against the skull, aimed at the brain and directed toward the tail.

Immediately following an effective shot, the pig will exhibit muscle contraction and muscle relaxation movements. In tonic activity, the body becomes extremely tense followed by gradual relaxation. This stage is typically followed by involuntary kicking or paddling movements, for a minute or two. Pigs that do not initially demonstrate tonic activity and immediately show paddling or kicking after collapse, have been ineffectively stunned and the procedure should be immediately administered again. As with all methods it is important to confirm that the pig has been euthanised effectively by checking its vital signs.

It is extremely important for the bolt gun to be cleaned and maintained regularly. Over time, carbon build up can slow the velocity of the bolt or cause the gun to malfunction. Therefore, proper and routine maintenance is critical to the function and longevity of the equipment.

After using a captive bolt, it is recommended that carotid (neck) artery is severed once the pig is stunned. Within 15 seconds of being shot with the captive bolt, use a sharp knife – 15 cm long blade and cut through the neck vessels and achieve a good flow of blood.

Figure 32: Marking the frontal position for captive bolt or rifle shot. Mark the spot on the pig



Figure 33: Restraint is sometimes required for humane euthanasia



Where a captive bolt or rifle is being used, only a frontal method (position above) or temporal method (see the Model Code) should be used. With a live round, the gun should be positioned in the same area (Figure 32 and 33) as above, but with the barrel slightly away from the head and perpendicular (90 degrees) to the skin.

Do not use a live round within the confines of a truck unless hollow point bullets are used.

If using a captive bolt, the pig should be bled out to ensure death.

Confirmation of death must be done following euthanasia using the following signs: a standing animal will collapse; the animal will not blink or have an eye reflex in response to touching the eye; no evidence of rhythmic breathing or heartbeat; no response to nose pinch; and no vocalisation.

4.3.4 Blunt Trauma

Euthanasia by blunt trauma is only effective for suckling piglets up to 15 kg. Trauma is a quick, firm blow to the top head over the brain. It is essential that the blow be administered accurately and with resolve to ensure euthanasia. The stockperson must be able to achieve euthanasia within a single blow to the head. The pig will usually show some muscle movements. The body often becomes extremely rigid followed by gradual relaxation. This is typically followed by involuntary kicking or paddling for a minute or two. If there is any doubt whether the pig is dead, the blow should be repeated. This method may be aesthetically objectionable to people administering and observing the method.

Once rendered unconscious, sever the carotid artery as soon as the rapid leg movements have ceased.

4.4 Confirming insensibility and death

Regardless of the method used, it is essential to be able to recognise ineffective stunning or euthanasia if it occurs. It also is important to confirm the death of the pig.

Insensibility should be checked within 30 seconds after the method is administered and should be monitored and maintained until death. Ineffective stunning and euthanasia can be recognised by the presence of one or more of the following signs:

- Rhythmic breathing
- Constricted pupils
- Attempts to raise the head (righting reflex)
- Vocalisation
- Palpebral reflex (run finger along the eyelash and if the pig blinks or moves its eye, the pig is sensible)
- Response to a painful stimulus (such as a nose prick with a needle).

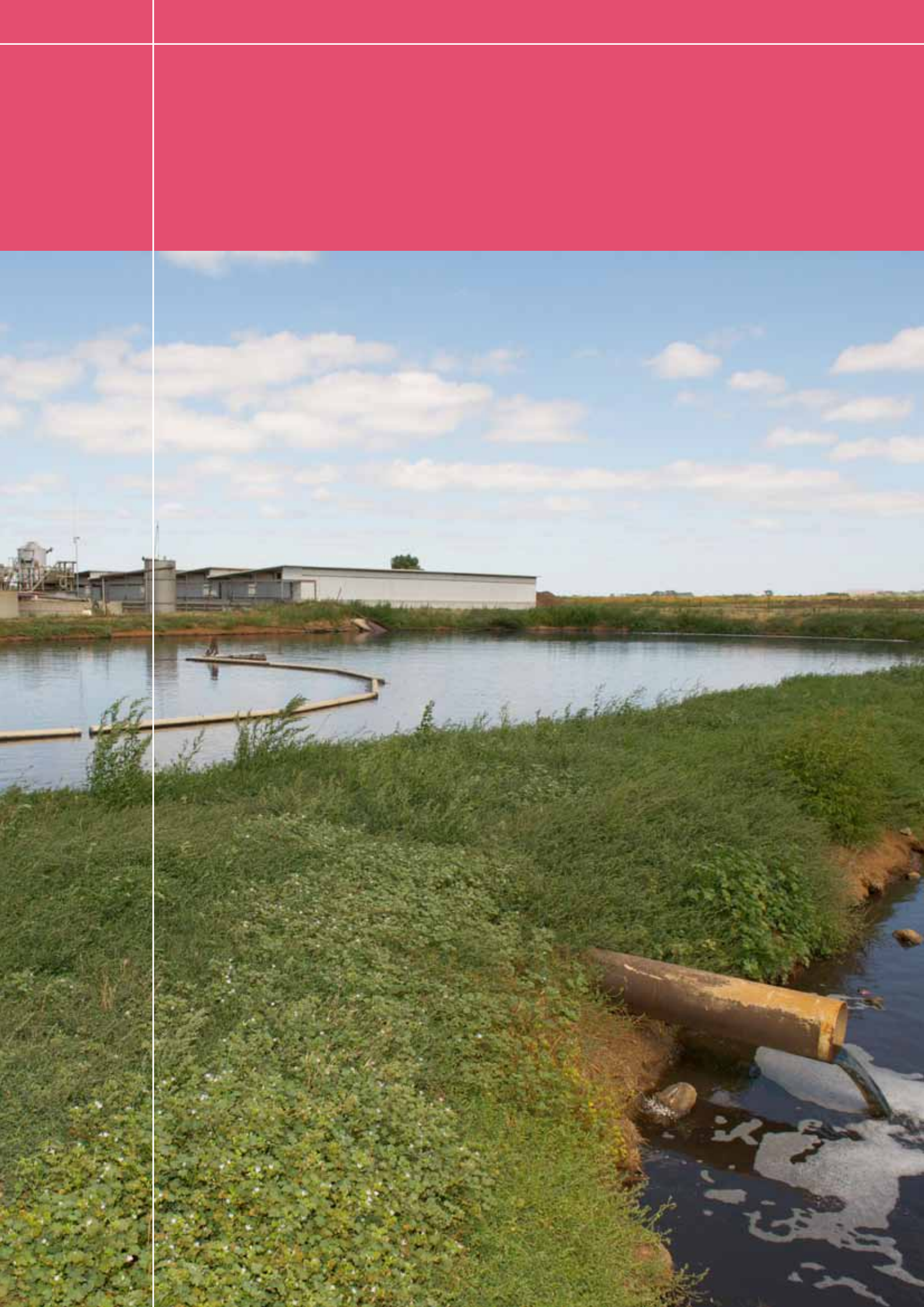
The pig should be confirmed dead before it is moved for disposal. All the following vital signs should be checked three minutes after the euthanasia method has been applied:

- No breathing
- No heart beat
- No movement or muscle tone
- No response to painful stimulus (such as a nose prick with a needle)
- No vocalisation
- No corneal reflex (the eye blinks when an object touches the cornea).

4.5 Carcass Management

Responsible disposal of carcasses is important to minimise risk of further disease spread. Careless carcass disposal can also contaminate surface and ground water resources, attract vermin and cause unwanted odours. Please refer to the *National Environmental Guidelines for Piggeries (2nd Edition Revised, 2010)*² for advice on carcass management options and considerations.

2 http://www.australianpork.com.au/pages/images/11pt_final_Lowres_31_08_11.pdf



Appendix I

Example treatment records

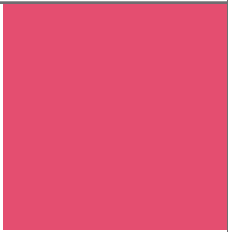
³Example treatment record

■ Day 1
 ■ Day 2
 ■ Day 3
 ~ Euthanise

Weaner Shed Treatments

Date	Shed/Pen No.	Recommended Treatment by Vet	Pig Weight	Dosage	Day 1	Day 2	Day 3	Comments

³ Day 1 of treatment pigs should have a straight red line marked across their back; Day 2 should be blue and so on. A red squiggly line would indicate the animal should be euthanised.



Weaner Shed Treatments

Date	Shed/Pen No.	Recommended Treatment by Vet	Pig Weight	Dosage	Day 1	Day 2	Day 3	Comments

'Example treatment record

Day 1  Day 2  Day 3  Euthanise 

Grower/Finisher Shed Treatments

Date	Tag/ID No.	Shed/Pen No.	Recommended Treatment by Vet	Dosage	Day 1	Day 2	Day 3	Comments

Appendix 2

Euthanasia Action Plan Template

Euthanasia Action Plan

Farm Name: _____ Date: _____

Drafted by: _____

Employees responsible for euthanasia: _____


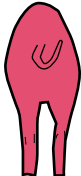
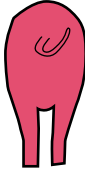
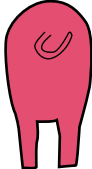
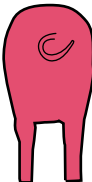
Phase of production / Size of pig	Euthanasia method of choice	Alternative method of euthanasia
Suckling pigs, up to 6 kg		
Nursery pigs, up to 30 kg		
Grower - Finisher pigs, up to market weight		
Mature pigs, sows and boars		

Employees responsible for euthanasia who have been trained in methods of euthanasia, confirming insensibility and confirmation of death:

Employee name	Training received	Date of training
	Yes	
	Yes	
	Yes	
	Yes	
	Yes	

Appendix 3

Condition Scoring of Pigs

Numerical Score	Pelvic Bones, Tail Head	Loin	Vertebrae	Ribs	
1	Pelvic bones very prominent. Deep cavity around the tail head.	Loin very narrow. Sharp edges on transverse spinal process. Flank very hollow.	Prominent and sharp throughout the length of the backbone.	Individual ribs very prominent.	
2	Pelvic bones obvious but some slight cover. Cavity around tail head.	Loin narrow. Only very slight cover to edge of transverse spinal process. Flank rather hollow.	Prominent.	Rib cage less apparent. Difficult to see individual ribs.	
3	Pelvic bones covered.	Edge of transverse spinal processes covered and rounded.	Visible over the shoulder. Some cover further back.	Covered but can be felt.	
4	Pelvic bones only felt with firm pressure. No cavity around tail.	Edge of transverse spinal processes felt only with firm pressure.	Felt only with firm pressure.	Rib cage not visible. Very difficult to feel any ribs.	
5	Pelvic bones impossible to feel. Root of tail set deep in surrounding fat.	Impossible to feel bones. Flank full and rounded.	Impossible to feel vertebrae.	Not possible to feel ribs.	

Care should be taken when assessing body fat and back fat cover as these can be less in pigs that are selected for certain conformation and fat cover in specific locations.

Source: *The Model Code of Practice for the Welfare of Animals (Pigs)*, 3rd Edition, 2007.

Appendix 4

Australian Pig Veterinarians body condition scoring and guidelines for action

Table 1: General Guidelines

Category ⁴	Action
1	<p>Immediate euthanasia</p> <p>Is in severe pain and is unlikely to respond to treatment</p> <p>Irreversible impediment to ability to freely access feed and/or water</p> <p>Emaciation/debilitation caused by chronic disease</p> <p>No improvement, or deterioration, after three to five days of treatment</p> <p>Pig will never be fit to load</p> <p>Is not economically-sound to treat</p>
2a	<p>Hospitalise, treat, review at least twice daily, euthanase if no response to treatment within 24-48 hours</p> <p>Likely to recover with intervention by a competent stockperson but risks deterioration if left in its home pen. Includes pigs with systemic illness, septicaemia, extensive and/or painful wounds or otherwise severe disease.</p>
2b	<p>Hospitalise, treat, review at least twice daily, euthanase if no response to treatment within two to 10 days</p> <p>Likely to recover with intervention by a competent stockperson but risks deterioration if left in its home pen. Includes conditions judged to be less severe than 2a and/or conditions which justify a longer recovery period. Includes pigs in body condition score 2 or less and/or pigs less able to compete with pen mates for food and/or water.</p>
3	<p>Leave in pen, treat, inspect daily</p> <p>Likely to recover with intervention by a competent person and is unlikely to deteriorate if left in its home pen.</p>
4	<p>Transport to abattoir for processing</p> <p>Is not in severe pain, including during WHP/ESI clearance period</p> <p>Is freely able to stand and walk</p> <p>Is capable of being loaded and transported</p> <p>Is free of clinical signs of disease</p> <p>Will not pose a risk to public health</p> <p>Condition will not worsen during or after transport</p> <p>There is no evidence of previous neglected severe illness/injury</p>
	<p>Pain relief must be provided</p>

2a / 2b Outcomes
 Remain in hospital pen for treatment
 OR
 Move to recovery pen
 OR
 Return to pen
 OR
 Euthanasia

⁴ Not to be confused with body condition scoring in Appendix 3. This categorisation should be read with a view to determining the appropriate course of action for given conditions in Table 2: Specific Conditions (over/leaf).

Table 2: Specific Conditions

	1	2a	2b	3	4
Body Condition	Pig in condition score 2 or less	X			
	Pig in condition score 2 or less that is under treatment and fails to improve, or deteriorates			X	
	Pig less than 50 per cent of average weight of pen/shelter mates	X			
Ear	Aural Haematoma			X	X
	Ear swollen, shrunken or misshapen but skin intact and no signs of infection			X	X
	Ear swollen or misshapen with signs of infection, broken skin and/or discharging wound		X	X	X
	Ear intact; Superficial wound in a localised area; minimal bleeding and no evidence of discharge or infection				X
Ear Biting	Ear not intact with evidence of bleeding and/or infection and/or haematoma formation		X		
Head tilt	Ear extensively damaged with bleeding +/- infection +/- haematoma formation +/- exposure of deeper tissue	X	X		
	Symptoms of middle ear infection - head tilt, head/ear shaking, +/- otherwise bright, alert and responsive and eating and drinking normally, +/- symptoms similar to meningitis if severe (see neurological)		X		
Eye	Blind	X			
	Blind in one eye		X		X
	Other	X			
Hernia	Scrotal / Umbilical				
	Extensively damaged, infected, ulcerated, bleeding, fly blown or with concurrent poor condition/other disease	X			
	Hernia resulting in impediment to pig's ability to walk, eat, drink or otherwise behave normally	X			
	Any hernia larger than 30 cm or touching the ground	X			
Hernias that are outside the above criteria				X	X

	I	2a	2b	3	4
Limbs	Limb broken	X			
	Completely non weight-bearing on a limb	X			
	Partial weight-bearing on a limb			X	
	Swelling of any joint to > twice normal size regardless of impact on gait and/or ability to access feed and water			X	
	Swelling of any joint to less than twice normal size; gait may be mildly affected but pig is able to weight bear on all limbs and is able to access feed and water without difficulty				X
	Digit missing and/or underlying bone/tendons exposed	X			
	Superficial damage/tear to claw				X
	Superficial wound in a localised area				X
	Superficial wounds affecting multiple limbs and/or extensive areas of an individual limb		X		
	Erosive or ulcerated skin lesion exposing to muscle, bone or tendon	X	X		
	Bursitis - swelling at bony prominence that is not inflamed and does not affect gait				
	Paralysis	X			
	Difficulty Standing	Downer pig, recumbent and unable to stand and/or walk	X		
In extreme distress when encouraged to stand		X			
Difficulty walking	Freely able to stand and weight bear on all limbs, but extreme distress when encouraged to walk	X	X		
	Freely able to stand and weight bear on all limbs but difficulty walking affect ability to access feed/water/predispose to bullying			X	
	Freely able to stand on all limbs; gait is affected but pig is able to access feed and water without difficulty				X
Nervous	Paralysis	X			
	Downer pig, recumbent and unable to stand and/or walk	X			
	Symptoms of meningitis - recumbent, paddling, reduced awareness and/or responsiveness, abnormal eye movements	X	X		
	Symptoms of middle ear infection - head tilt, head/ear shaking, +/- otherwise bright, alert and responsive and eating and drinking normally, +/- symptoms similar to meningitis if severe		X	X	
	Symptoms of meningitis - recumbent, paddling, reduced awareness/response, abnormal eye movements, head tilt	X	X		

		1	2a	2b	3	4
Prolapse	Rectal prolapse	Small (less than trotter size of same size pig) fresh, intact prolapse in an otherwise bright, alert and responsive pig that is eating and drinking normally - Isolate on-farm and treat, or transport to abattoir individually within 48 hours		X		X
		Extensively damaged, bleeding, infected or fly blown prolapse	X			
		Prolapse that is not able to be replaced or amputated by a competent person, using pain relief, within 48 hours	X			
		Any untreated prolapse > 48 hours old	X			
	Uterine prolapse	Any uterine prolapse without effective veterinary intervention within six hours	X			
	Vaginal prolapse	Any vaginal prolapse without effective veterinary intervention	X			
Repro	Farrowing difficulty	Non-productive (no piglets being produced) with visible signs of sow discomfort and/or suspect retained piglets with signs of systemic illness	X			
	Mastitis	Productive – piglets being produced after intervention (medical/manual) (farrowing crate may function as hospital pen)		X		
	Uterine prolapse	Mild to severe mastitis with or without associated ill thrift, erosion/ulceration/abscessation of mammary tissue		X		
	Vaginal discharge	Any uterine prolapse without effective veterinary intervention within six hours	X			
		Mild vaginal discharge in an otherwise healthy sow			X	X
	Vaginal prolapse	Profuse and/or malodorous and/or purulent vaginal discharge and/or bloody urine		X		X
Respiratory		Any vaginal prolapse without effective veterinary intervention	X			
		Coughing or sneezing in an otherwise bright, alert and responsive pig that is eating and drinking normally			X	
		Difficulty breathing (thumping) and/or coughing with evidence of lost condition and/or systemic or other concurrent illness or impediment to feed/water intake		X		
		Severe respiratory distress	X			

		I	2a	2b	3	4
Skin	Abscess				X	X
				X		
		X	X			
Skin	Erysipelas					X
			X			
Wounds and pressure sores					X	X
				X		
		X	X			
Tail	Tail Biting				X	X
				X		
		X				

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¹ Not to be confused with body condition scoring in Appendix 3. This categorisation should be read with a view to determining the appropriate course of action for given conditions in Table 2: Specific Conditions (overleaf).

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AUSTRALIAN PORK LIMITED

ABN 83 092 783 728

Level 2, 2 Brisbane Avenue, Barton ACT 2600

P: 02 6285 2200 **F:** 02 6285 2288

E: apl@australianpork.com.au

www.australianpork.com.au